

# THE ENVIRONMENT

- Which one of the following pairs is correctly matched?
  - Biosphere — Eduard Suess
  - Ecosystem — A.P. de Candolle
  - Ecology — A.G. Tansley
  - Biodiversity — Reiter
- Which of the following groups of gases contribute to the 'Green House Effect'?
  - Ammonia and Ozone
  - Carbon mono-oxide and Sulphur di-oxide
  - Carbon tetrafluoride and Nitrous oxide
  - Carbon dioxide and Methane
- Which one of the following is the correct definition of "Agenda 21"?
  - It is an action plan of U.N.O for protecting human rights.
  - It is a book of 21 chapters on nuclear disarmament.
  - It is an action plan for the sustainable development.
  - It is an agenda for the election of the president in the next meeting of SAARC.
- Environmental degradation means
  - Overall lowering of environmental qualities.
  - Adverse change brought in by human activities.
  - Ecological imbalance
  - All the above
- Which of the following countries suffer from the acid rains?
  - Canada
  - France
  - Norway
  - Germany

Select the correct answers from the codes given below:

**Codes:**

- 1 and 2
  - 1 and 3
  - 2 and 3
  - 3 and 4
- Which of the following statements about Radioactive pollution are correct?
    - It causes genetic changes in the animals.
    - It causes disbalance among different minerals in the soil.
    - It hinders blood circulation.
    - It causes cancers.

Select the correct answer from the codes given below:

**Codes:**

- 1 and 2
  - 1 and 4
  - 1, 3 and 4
  - 2, 3 and 4
- Given below are two statements:  
**Assertion (A):** Natural vegetation is the true index of climate.  
**Reason (R):** Water loving plants are found in moist climate  
 In the context of the above statements, which one of the following is correct?
    - Both A and R are true and R is the correct explanation of A.
    - Both A and R are true but R is not the correct explanation of A.
    - A is true but R is false.
    - A is false but R is true.
  - Which of the following conditions indicate the impact of global warming?
    - Melting of glaciers
    - Lowering down of sea level
    - Changes in weather conditions
    - Rise in global temperature

Select the correct answer from the codes given below:

**Codes:**

- (a) 1 and 2                      (b) 1, 2 and 3  
(c) 1, 3 and 4                (d) 1, 2, 3 and 4

9. Consider the following statements:

**Assertion (A):** Forests are a renewable resource.

**Reason (R):** They enhance the quality of environment.

Select the correct answer from the codes given below:

**Codes:**

- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
10. As an ecosystem, wetlands are useful for which of the following?  
(a) For nutrient recovery and cycling  
(b) For releasing heavy metals through absorption by plants.  
(c) They maintain the rivers and control floods.  
(d) All the above
11. Which one of the following pairs is not correctly matched?  
(a) Kyoto Protocol — Carbon Trading  
(b) Environmental impact assessment — Leopold Matrix  
(c) The year without summer — 1816  
(d) Milankovich Theory — On the origin of Species
12. Which of the following statements are true about ecosystem? Select the correct answer from the codes:  
1. Ecosystem comprises both biotic and abiotic components.  
2. Solar radiation is the main driving force of the ecosystem.  
3. Ecosystem is a closed system.  
4. Ecosystem does not have its own productivity

**Codes:**

- (a) 1 and 2                      (b) 2 and 3  
(c) 1 and 3                      (d) 3 and 4

13. Consider the following statements:

**Assertion (A):** Plants are called primary producers.

**Reason (R):** Plants produce their food themselves through the process of photosynthesis.

Select the correct answer from the codes given below:

- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

14. Which one of the following statements is not correct?

- (a) Ecosystem's structure, species composition and functioning change seasonally between years.  
(b) Nature has spent millions of years to refine a stable ecosystem.  
(c) Ecosystem functions mainly through the input of solar energy  
(d) The relative loss of energy due to respiration decreases with higher trophic levels.

15. Consider the following statements:

**Assertion (A):** Conservation is a basic element of environmental planning.

**Reason (R):** Conservation and development are complementary to each other.

Select the correct answer from the codes given below

**Codes:**

- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
16. Which one of the following does not promote stability of the ecosystem?  
(a) Balancing between production and consumption of each element in the ecosystem.  
(b) Balance between input and output of energy.

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- (c) Normal functioning of different biochemical cycles.
- (d) Increase of human population.
17. Consider the following statements:  
**Assertion (A):** Ecological productivity decreases from the equator towards the poles.  
**Reason (R):** Insolation rapidly decreases from the equator towards the poles.  
 Select the correct answer from the codes given below:
- Codes:**
- (a) Both A and R are true and R is the correct explanation of A.  
 (b) Both A and R are true but R is not the correct explanation of A.  
 (c) A is true but R is false.  
 (d) A is false but R is true.
18. Which one of the following statements is correct?
- (a) The relative loss of energy due to respiration is lower from higher trophic levels.  
 (b) Species at higher trophic levels appear to be less efficient in using their available food supply.  
 (c) Higher trophic levels tend to be less discrete than the lower ones.  
 (d) Food chains tend to be reasonably long.
19. Consider the following statements:  
**Assertion (A):** Organic farming reduces the emission of greenhouse gases.  
**Reason (R):** Organic farming utilise alternate practices.  
 Select the correct answer from the codes given below:
- Codes:**
- (a) Both A and R are true and R is the correct explanation of A.  
 (b) Both A and R are true but R is not the correct explanation of A.  
 (c) A is true but R is false.  
 (d) A is false but R is true.
20. How does National Biodiversity Authority (NBA) help in protecting the Indian agriculture?
1. NBA checks the biopiracy and protects the indigenous and traditional genetic resources.
  2. National Biodiversity Authority (NBA) directly monitors and supervises the scientific research on genetic modification of crop plants.
3. Application for Intellectual Property Rights related to genetic/biological resources can not be made without the approval of NBA.  
 Which of the statements given above is/are correct?
- (a) 1 only (b) 1 and 2 only  
 (c) 1 and 3 only (d) 1, 2 and 3
21. Consider the following protected areas:
1. Bandipur
  2. Bhitarkanika
  3. Manas
  4. Sunderbans
- Which of the above are declared Tiger Reserves?
- (a) 1 and 2 only (b) 1, 3 and 4 only  
 (c) 2, 3 and 4 only (d) 1, 2, 3 and 4
22. With reference to the wetland of India, consider the following statements:
1. The country's total geographical area under the category of wetlands is recorded more in Gujarat as compared to other states.
  2. In India, the total geographical area of coastal wetlands is larger than that of inland wetlands.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only  
 (c) Both 1 and 2 (d) Neither 1 nor 2
23. Which of the following can be threats to the biodiversity of a geographical area?
1. Global warming
  2. Fragmentation of habitat
  3. Invasion of alien species
  4. Promotion of vegetarianism
- Select the correct answer using the codes given below:
- (a) 1 and 2 only (b) 2 and 3 only  
 (c) 1, 2 and 3 only (d) 1, 2, 3 and 4 only
24. Consider the following statements:
1. Biodiversity is normally greater in the lower latitudes as compared to the higher latitudes.
  2. Along the mountain gradients, biodiversity is normally greater in the lower altitudes as compared to the higher altitudes.
- Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2
25. The Red Data Books published by the International Union for Conservation of Nature and Natural Resources (IUCN) contains lists of
1. Endemic plant and animal species present in the bio-diversity hotspots.
  2. Threatened plant and animal species.
  3. Protected sites for conservation of nature and natural resources in various countries.
- Select the correct answer using the codes given below:

- (a) 1 and 3 (b) 2 only  
(c) 3 only (d) 2 and 3
26. Biodiversity forms the basis for human existence in the following ways:
1. Soil formation
  2. Prevention of soil erosion
  3. Recycling of waste
  4. Pollination of crops
- Select the correct answer using the codes given below:
- (a) 1, 2 and 3 only (b) 2, 3 and 4 only  
(c) 1 and 4 only (d) 1, 2, 3 and 4
27. Match List-I with List-II and select the correct answer from the codes given below:

<b>List-I</b>	<b>List-II</b>
<b>(National Park)</b>	<b>(Location)</b>
A. Gir	1. Assam
B. Sundarban	2. Gujarat
C. Betla	3. West Bengal
D. Kaziranga	4. Jharkhand

**Codes:**

- |       |   |   |   |
|-------|---|---|---|
| A     | B | C | D |
| (a) 1 | 3 | 4 | 2 |
| (b) 2 | 3 | 1 | 4 |
| (c) 2 | 3 | 4 | 1 |
| (d) 4 | 2 | 3 | 1 |
28. Match List-I with List-II and select the correct answer from the codes given below the lists:

<b>List-I</b>	<b>List-II</b>
<b>(Biosphere sites)</b>	<b>(Year of setting-up)</b>
A. Nilgiri	1. 2000
B. Nanda Devi	2. 1989
C. Sundarban	3. 1988
D. Kanchanjunga	4. 1986

**Codes:**

- |       |   |   |   |
|-------|---|---|---|
| A     | B | C | D |
| (a) 1 | 2 | 3 | 4 |
| (b) 4 | 3 | 2 | 1 |
| (c) 3 | 4 | 1 | 2 |
| (d) 2 | 3 | 1 | 4 |
29. Which of the following regions of India have been designated as biodiversity hotspots?  
Select the correct answer from the codes given below:
1. Eastern Himalaya
  2. Eastern Ghat
  3. Western Ghat
  4. Western Himalaya

**Codes:**

- (a) 1 and 2 only (b) 1 and 3 only  
(c) 2 and 4 only (d) 3 and 4 only
30. Match List-I with List-II and select the correct answer from the code given below:

<b>List-I</b>	<b>List-II</b>
<b>(Biosphere Reserve)</b>	<b>(State)</b>
A. Dehang-Debang	1. Odisha
B. Manas	2. Meghalaya
C. Nokrek	3. Assam
D. Similipal	4. Arunachal Pradesh

**Codes:**

- |       |   |   |   |
|-------|---|---|---|
| A     | B | C | D |
| (a) 1 | 2 | 3 | 4 |
| (b) 2 | 1 | 3 | 4 |
| (c) 4 | 3 | 2 | 1 |
| (d) 3 | 4 | 1 | 2 |
31. Arrange the following states of India in descending order of their mangrove cover and select the correct answers from the codes given below:
1. Andhra Pradesh
  2. Gujarat
  3. Odisha
  4. West Bengal

**Codes:**

- (a) 3, 2, 1, 4 (b) 1, 2, 4, 3  
(c) 4, 3, 2, 1 (d) 4, 2, 1, 3
32. Match List-I with List-II and select the correct answer from the codes given below:

<b>List-I</b>	<b>List-II</b>
<b>(Biosphere sites)</b>	<b>(Year of setting-up)</b>
A. Biodiversity	1. G. Tansley
B. Wildlife	2. E.O. Wilson
C. Ecosystem	3. E. Haeckel
D. Ecology	4. W.T. Hornaday

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**Codes:**

	A	B	C	D
(a)	2	4	3	1
(b)	2	4	1	3
(c)	4	2	3	1
(d)	4	2	1	3

33. Consider the following statements:

1. Dachigam National Park is in Jammu and Kashmir.
2. Loktak lake is known as floating national park.
3. Loktak lake is located in Assam.

Which of the above statements is/are correct?

- (a) 1 only  
(b) 2 only  
(c) 1 and 2  
(d) 1, 2 and 3

34. Match List-I with List-II and select the correct answer from the codes given below:

List-I (Sanctuaries)	List-II (State)
A. Namdapha	1. Karnataka
B. Periyar	2. Arunachal Pradesh
C. Bandipur	3. Manipur
D. Lamjao	4. Kerala

**Codes:**

	A	B	C	D
(a)	2	4	1	3
(b)	4	2	1	3
(c)	4	2	3	1
(d)	2	4	3	1

35. Consider the following kinds of organisms and identify the pollinating agent/agents.

- (a) Bat and Bee but not bird  
(c) Bee, bat and birds  
(c) Hummingbird but not bee  
(d) Wind, bee, bat, birds.

36. Consider the following statements regarding the Millennium Assessment (MA) report 2005 and choose the correct ones:

1. MA defines Ecosystem services as benefits people obtain from ecosystems.
2. It includes supporting services and provisioning services only.

- (a) Only 1 (b) Only 2  
(c) Both 1 and 2 (d) Neither 1 nor 2

37. Which of the following are the incorrect statements about 'Keystone species'.

1. Keystone species are the small-sized plants and organisms which have large effect on the environment.
2. Keystone species play critical role in maintaining the structure of an ecological community.
3. Keystone species do not generally affect other organisms.

- (a) 1 and 2 (b) 2 and 3  
(c) 1 and 3 (d) All are correct

38. Consider the following statements:

**Assertion (A):** Many mangrove plants possess high levels of organic solutes.**Reason (R):** This is an adaptation to survive and grow in salty waters. Select the correct answer from the codes given below:**Codes:**

- (a) Both A and R are true R is correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

39. Consider the following statements:

**Assertion (A):** Amensalism is a negative interaction between two living individuals.**Reason (R):** In amensalism, allelochemicals are secreted by one individual.

Select the correct code:

**Codes:**

- (a) Both A and R are true, R is correct explanation of A.  
(b) Both A and R are true, but R is not the correct explanation of A.  
(c) A is true, R is false.  
(d) A is false, R is true.

40. Consider the following statements:

**Assertion (A):** Use of weedicides affect photosynthetic ability of plants.**Reason (R):** Weedicides are metabolic inhibitors.



**Codes:**

- (a) Both A and R are true, R is correct explanation of A.  
 (b) Both A and R are true, but R is not the correct explanation of A.  
 (c) A is true, R is false.  
 (d) A is false, R is true.
41. Consider the following statements and choose the correct ones:  
 1. A new online Atlas of freshwater biodiversity has been launched on 29 January, 2014 which is an output of Biofresh.  
 2. This will help in managing and protecting the freshwater in future.  
 (a) 1 only (b) 2 only  
 (c) Both 1 and 2 (d) Neither 1 nor 2
42. Consider the following statements and choose the correct ones.  
 1. The prestigious Gold Standard Foundation (GSF) certification has been awarded to the Kolkata Metro, on 2 February, 2014.  
 2. This certification is given for using the energy efficiently.  
 3. Kolkata Metro has become the first ever railway system in the world with GSF certification standard.  
 (a) 1 and 2 only (b) 2 and 3 only  
 (c) 1 only (d) 2 only
43. Consider the following statements and choose the correct ones.  
 1. The International Union for Conservation of Nature (IUCN) is the world's oldest and largest global environmental organization.  
 2. IUCN was founded in 1948, its Green data book does conservation planning, monitoring to protect endangered species.  
 3. On 30 January, 2014, IUCN announced that it is celebrating 50 years of the IUCN Red List of threatened species.  
 (a) 1 and 2 only (b) 1 and 3 only  
 (c) 2 and 3 only (d) All are correct
44. Consider the following statements and choose the wrong ones.  
 1. The World's largest archipelago, Indonesia is prone to seismic activities and dangers associated with it.  
 2. Indonesia is located on the so-called Pacific "Ring of Fire", which is an arc of volcanoes and fault lines.  
 3. An earthquake of magnitude 7.1 rocked parts of Indonesia's main Java Island on 25 January, 2014.  
 (a) 1 and 2 only (b) 1 and 3 only  
 (c) 2 only (d) 3 only
45. As per National Aeronautics and Space Administration (NASA) research scientists found that concentrations of mercury near the ground level had increased in the Arctic Sea by mercury-pumping reaction which takes place because -  
 1. of open water in a lead is much warmer than the air above it.  
 2. of the temperature difference, the air above the lead churns like the air above a boiling pot.  
 3. the mixing is so strong that it actually pulls down mercury from a higher layer of the atmosphere to near the surface.  
 Select the answer from the codes given below-  
 (a) 1 only (b) 1 and 2 only  
 (c) 2 and 3 only (d) All of the above
46. Biodiesel researchers have produced hydrocarbons in bacterium—  
 (a) *Escherichia coli*  
 (b) *Streptococcus pyogenes*  
 (c) *Vibrio cholerae*  
 (d) *Enteritis salmonella*
47. A new nuclear waste disposal strategy announced by United States include-  
 1. a "pilot interim store" will become operational in 2021  
 2. a larger "full-scale interim store" will open by 2025  
 3. an underground disposal facility to be established by 2048 to permanently dispose of the material.  
 4. a new organisation will be established to manage the siting, development and operation of the future waste stores.  
 Select the answer from the codes given below-  
 (a) 1, 2 and 3 (b) 2, 3 and 4  
 (c) 1, 3 and 4 (d) All of the above

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48. Consider the following statements
1. The Pacific salmon fish uses the Earth's magnetic field to find their way
  2. Machli, Queen Mother of tiger dynasty was found in the Ranthambhore National Park, India.

Which of the above statements is/are correct?

- (a) 1 only                      (b) 2 only  
(c) both 1 and 2              (d) None of these
49. Which of the following statements are correct ?
1. A new study has found that changes in solar activity contributed no more than 10 per cent to global warming in the 20th century published in the journal Environmental Research Letters.
  2. It has been proposed that cosmic rays may have a role in cooling the earth by encouraging clouds to form, which subsequently reflect the sun's rays back into space.
  3. Researchers found high correlation between cosmic rays and global temperatures occurring every 22 years.

Select the answer from the codes given below-

- (a) 1 only                      (b) 1 and 2 only  
(c) 2 and 3 only              (d) All of the above
50. The International Union for Conservation of Nature (IUCN) red list version 2013 of the birds indicates 15 species of birds from India as critically endangered. The reason for the decline in the number of these birds are:
1. Loss, modification, fragmentation and degradation of habitat
  2. Environmental contaminants
  3. Poaching
  4. Use changes mainly conversion of large areas to intensive crop cultivation

Select the answer from the codes given below-

- (a) 1, 2, and 3                      (b) 2, 3, and 4  
(c) 1, 3, and 4                      (d) All of the above
51. The International Union for Conservation of Nature (IUCN) on 30 January 2014 completed its 50 years of the IUCN Red List of Threatened Species in guiding conservation action and policy decisions. The IUCN:
1. acts as a powerful tool to inform and catalyse action for biodiversity conservation and policy change for things that are critical to

protect the natural resources that are needed by us to survive.

2. provides the information on population size as well as trends depending upon the range and habitat needs of species.

Which of the above statements is/are correct?

- (a) 1 only                      (b) 2 only  
(c) both 1 and 2              (d) None of these
52. The steps taken by the Government of India for conversion of endangered species are
1. The Central Government has enacted the Wild Life (Protection) Act, 1972 for protection of wildlife including birds.
  2. Wetland (Conservation and Management) Rules 2010 have been framed for protection of wetlands, in the States, which are habitats of birds.
  3. Wildlife Crime Control Bureau has been established for control of illegal trade in wildlife, including endangered species of birds and their parts and products.
  4. The Centrally Sponsored Scheme of National Plan for Conservation of Aquatic Eco-System also provides assistance to the States for management of wetlands including Ramsar sites in the country.

Select the answer from the codes given below-

- (a) 1, 2, and 3                      (b) 2, 3, and 4  
(c) 1, 3, and 4                      (d) All of the above
53. The Delhi Metro is the first ever railway system in the world to be awarded with the prestigious Gold Standard Foundation (GSF) certification standard for
- (a) providing security to the people
  - (b) using the energy efficiently
  - (c) carrying largest number of passengers
  - (d) All of the above
54. The three species of vultures that are critically endangered that have declined by more than 97 percent since 1990s are:
1. Egyptian vulture (*Neophron percnopterus*)
  2. Oriental white-backed (*Gyps bengalensis*)
  3. Long-billed (*Gyps indicus*)
  4. Slender-billed vulture (*Gyps tenuirostris*)

Select the answer from the codes given below-

- (a) 1, 2 and 3                      (b) 2, 3 and 4  
(c) 1, 3 and 4                      (d) None of the above

55. Consider the following statements
1. Tree Foundation, an NGO engaged in conservation of the sea turtle found more than 1000 dead Olive Ridley Turtles in the shores of Nagapattinam.
  2. The Olive Ridley turtles find the coastline of Nagapattinam as a favourable nesting habitat and that's why they reach to the shore from December to March every year.
  3. The Olive Ridley looks very similar to the Kemp's Riddle, but has a deeper body and slightly up-turned edges to its carapace (shell).
  4. Olive Ridley weighs around 45 kilograms and are 70cm in size and this makes them the smallest of the sea turtles along with Kemp riddles.
- Which of the following statements are correct?
- (a) 1, 2 and 3                      (b) 2, 3 and 4  
(c) 1, 3 and 4                      (d) All of the above
56. Which of the following lake has been named Destination Flyways by the United Nations World Tourism Organization (UNWTO) on 21 January 2014?
- (a) Chilika lagoon in Odisha  
(b) Dal Lake in Kashmir valley  
(c) Loktak Lake in Manipur  
(d) Kolleru Lake in Andhra Pradesh
57. Which of the following statements is/are correct?
1. First Climate Change theatre in India (second theatre in the world) was opened at Pusa, New Delhi in January 2014.
  2. The Inter-governmental Panel on Climate Change (IPCC) UN report on 17 January 2014 reported that during 2000 to 2010, the CO<sub>2</sub> has grown by 2.2 percent per year and this rise is almost twice higher from the growth of the period of 1970 to 2000.
- Answer from the codes given below:
- (a) 1 only                      (b) 2 only  
(c) 1 and 2 only                      (d) None of these
58. G.B. Pant Institute of Himalayan Environment and Development (GBPIHED) released the Report titled Estimation of retreat of Gangotri glacier on 7 January 2014. The Report includes-
1. Gangotri glacier is retreating in the Himalayas and its volume and size are shrinking between Gaumukh and Bhojbasa.
  2. There is some disintegration in the upper regions of the Gangotri glaciers due to tectonic activities.
  3. Retreat of Gangotri glaciers in this decade was higher than in the previous decade due to global warming.
- Select the answer from the codes given below-
- (a) 1 only                      (b) 1 and 2 only  
(c) 2 and 3 only                      (d) All of the above
59. In December 2013, China built a new research station in Antarctica called
- (a) Taishan                      (b) Great Wall  
(c) Zhongshan                      (d) Kunlun
60. Which of the following are the new species of freshwater catfish discovered in Idukki and Pathanamthitta districts of Kerala in November 2013?
1. *Horabagrus melanosoma*
  2. *Mystus heoki*
  3. *Mystus indicus*
  4. *Mystus miami*
- Select the answers from the codes given below:
- (a) 1 only                      (b) 1 and 2 only  
(c) 1, 2 and 3 only                      (d) All of the above
61. The Ministry of Environment and Forest declared India's first marine eco-sensitive zone in –
- (a) Gulf of Kutch                      (b) Palk Strait  
(c) Gulf of Khambhat                      (d) Gulf of Mannar
62. Which of the following has been cited as a cause for the deaths of the Penguin chicks from the world's largest colony of Magellanic Penguins
- (a) Lack of food                      (b) Warm Ocean Currents  
(c) Climate Change                      (d) All of the above
63. Scientists from the University of Technology, Sydney (UTS) explained that seagrass can play a crucial role in fighting against the climate change. Which of the following is/ are correct about seagrass?
1. Seagrass helps by capturing and storing the carbon by the process of photosynthesis.
  2. Seagrass also traps the particles in the water column.
  3. The seagrass plant is 35 times better in locking the carbon than the rainforests.



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- (a) 1 only                      (b) 2 only  
(c) 1 and 2                    (d) 1, 2 and 3
64. Dung beetles live in regions where cattle graze, quickly burying and recycling cattle droppings. Because of the dung beetles activities, breeding habitats for disease-carrying flies are reduced and the plants upon which cattle feed are nourished. The relationship between the dung beetles and the disease-carrying flies is a type of :
- (a) mutualism  
(b) commensalism  
(c) intraspecific competition  
(d) interspecific competition
65. Discussing the consequences of global climate change at a conference, representatives of a developing nation suggest that those nations that contribute the most greenhouse gases (GHGs) to the atmosphere should contribute the most to paying for adaptive responses worldwide. Further, this representative pointed out that her poor country contributes less than 1% of the annual GHGs and has less than 0.1% of the world's wealth. This representative's appeal represents:
- (a) the precautionary principle  
(b) the polluter pays and equity principles  
(c) an argument for mitigation instead of adaptation.  
(d) stages 2 and 3 of the climate change skeptics responses
66. Flea beetles alone are unlikely to eliminate all of the leafy spurge in a region. Instead, the number of leafy spurge plants and the number of flea beetles in a particular community may stabilize. At this point, the leafy spurge and flea beetle populations:
- (a) have exhibited exponential growth followed by a crash  
(b) have experienced constant growth  
(c) are still experiencing exponential growth  
(d) are experiencing environmental resistance
67. Eutrophication in the Chesapeake Bay along the eastern edge of Maryland has resulted in low oxygen levels in the water and alternation of food webs. The cause of this eutrophication appears to be pollution that contains high levels of :
- (a) nitrogen and carbon  
(b) nitrogen and phosphorus  
(c) carbon and phosphorus  
(d) carbon, nitrogen and phosphorus
68. In case of a parasitic food chain, the shape of the pyramid of number is always:
- (a) Upright                      (b) Linear  
(c) Inverted                      (d) Not certain
69. In a forest, deer, raccoons, squirrels, and other animals eat and find shelter. A detritus food web occurs as their wastes accumulate on the forest floor. In this detritus web:
- (a) deer and raccoons function as the producers  
(b) fungi and earthworms function as producers  
(c) decomposers function as consumers  
(d) the deer and raccoons represent decomposers
70. In a rural hilly district in Himachal Pradesh, a land developer uses bulldozers to clear all but the largest trees and cleans up a nearby stream, lining the bottom of the stream with pretty rocks and steeping-stones. Planting lawn grasses around the base of the trees, the owner wants to create a pretty park-like setting around his home. We expect that in this cleared yard, there will be:
- (a) more species of invertebrates in the stream and on the land but fewer species of vertebrates and plants everywhere  
(b) more mammal and plant species, but fewer birds and invertebrates on the land and in the stream  
(c) fewer species of vertebrates and plants everywhere but more invertebrates in the stream  
(d) fewer species of plants, invertebrates, and vertebrates everywhere
71. In the communities found deep in the ocean off the shore of Japan, bacteria have special enzymes that allow them to form organic matter by chemosynthesis. These communities frequently have worms, clams, shrimp and many other organisms clustered together. These communities nestle around hydrothermal vents where super heated water, springs from the bottom of the ocean. In hydrothermal vent communities, we would not expect to find :

- (a) carbon compounds  
(b) chemosynthesis  
(c) chlorophyll  
(d) producers
72. Iron ore mining companies are expanding into the deep forest of Orissa where native populations of indigenous people have lived off the land for many centuries. In order to resolve the growing conflicts between the natives and the mining companies. They have been urged by the Government officials to bring together all of the interested parties. The mining company operations in the forest will likely lead to the loss of ecosystem services, such as:  
(a) the depletion of iron ore from the ground  
(b) the shift from logging to mining  
(c) sources of freshwater  
(d) the construction of new roads
73. Neena gets a new baby turtle from a friend, and is told to feed it worms. For the first few months, the turtle seemed to grow fine. But as time passed, the turtle's shell appeared soft and fragile. Someone suggested that the turtle might not be getting enough calcium in its diet. If this is true for this turtle, dietary calcium is :  
(a) a limiting factor  
(b) an environmental condition  
(c) a habitat condition  
(d) a natural environmental stressor
74. On a winter day, most automobiles keep the passengers warm by using heat generated by the engine. This use of the heat by-product from a gas engine is an example of :  
(a) non-fossil-fuel energy  
(b) cogeneration  
(c) nuclear power  
(d) a sustainable source of energy
75. Some farmers rotate their crops from year to year, switching from soyabeans to corn on the same fields. What is one of the advantages of doing this?  
(a) Soyabeans add large amounts of carbon dioxide to the soil, which helps the corn crop.  
(b) Both crops require the same fertilizing supplies, so farmers save by buying fertilizer in bulk.  
(c) Corn adds large amounts of phosphorus to the soil, which helps the soyabean crop  
(d) The corn crop benefits from reactive nitrogen added to the soil by the soyabean crop
76. The concept of biodiversity hotspots is given by :  
(a) F.P. Odum (b) Norman Myers  
(c) James Lovelock (d) Rachel Carson
77. The concern about human-to-human transmission of bird flu is most closely monitored by :  
(a) the national governments of the countries of the world  
(b) the World Health Organization and the Centers for Disease Control  
(c) World Wide Institute for Infectious Disease  
(d) International Centers for Health and Human Disease
78. Walking along a large city park on a hot summer day, you look for a cool resting place and sit down on a large rock under a tree, at the quiet edge of a stream. You have searched for and found an example of a :  
(a) microclimate (b) biome  
(c) landscape (d) population
79. Which of the following is regarded as the main cause of groundwater contamination?  
(a) agricultural products  
(b) landfills  
(c) septic tanks  
(d) All of the above main sources of ground water contamination.
80. Chipko Movement occurred in which of following region?  
(a) Tribal areas of MP  
(b) Rural area of Rajasthan  
(c) Tehri Garhwal  
(d) Darjeeling region
81. Which of following is One of the best solutions to get rid of non-biodegradable wastes is :  
(a) Recycling waste  
(b) Burying waste  
(c) Burning waste  
(d) All of the above

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82. Which of following is correct statement about the Ozone?
- Ozone in troposphere is good for breathing
  - Ozone in Troposphere is not good for breathing
  - Ozone is present only in Troposphere.
  - All of the above
83. Consider following statements about the Ozone Hole
- Ozone formation and destruction keep on happening
  - Ozone destruction rate is higher than its formation rate
  - Ozone destruction rate is equal to the its formation rate
- Which of above statement is/ are true?
- (I) only
  - (I) and (II) Only
  - (I) and (III)
  - (III) Only
84. Earlier there was balance between the formation and destruction of Ozone layer but after the release of varieties of harmful substances into atmosphere, this balance has been disturbed. Now rate of destruction is higher than the rate of formation of Ozone layer which is causing widening of Ozone hole. CFC (Chlorofluorocarbons) is one of the sources responsible for causing hole in Ozone layer, which of following statement is correct about the CFC:
- CFC is made of Chlorine, fluorine, and carbon
  - CFC is released from Refrigerant, foams in plastic manufacturing, etc
  - Refrigerant is the major source of CFC
- 1 only
  - 2 only
  - 1 and 2 only
  - 1, 2 and 3
85. Nitrogen Oxide is also held responsible for the depletion of Ozone layer, which of the following is source of Nitrogen Oxide?
- Industrial emission
  - Fertilizers which are used in agricultural activities
  - Thermonuclear weapons
  - All of the above
86. Which of the following statement is correct about the intergovernmental Panel on Climate Change (IPCC)?
- IPCC was established in 1988
  - IPCC does not evaluate the risk of climate change on human
  - IPCC published its first report in 1989
  - All of the above
87. Which of following statement is true about the Ecotone?
- It is meeting place of two different eco systems
  - It is meeting place of two same eco systems
  - Density of species is very low here
  - All of the above.
88. Consider following statement about the estuary
- Estuary is a place where the river fresh water meets with ocean water
  - This area is highly productive
  - This area is highly unproductive
  - All of the above
- Which of above the statements is/are true?
- (I) only
  - (II) only
  - (I) and II
  - (III)
89. Which of the following statement is incorrect about the Biosphere?
- Biosphere is a combination of lithosphere, hydrosphere and atmosphere
  - Biosphere is missing at extreme of north and south pole
  - Organisms are uniformly present in Biosphere
  - All of the above
90. What is the carbon credit?
- It is the difference between the carbon emission allowed and actually emitted carbon
  - It is the loan amount by IMF for reducing pollution
  - It is loan given to poor people for buying Modern Stoves
  - All of the above
91. What is the meaning of coral bleaching?
- Fading of coral color or decline in zooxanthellae due to climate change
  - Impacts of excessive sea trade on fishing industry

- (c) Both (a) and (b)  
(d) None of the above
92. Relative contributions of  $\text{CO}_2$ ,  $\text{CH}_4$ , CFCs and  $\text{N}_2\text{O}$  towards global warming are:  
(a) 50 %, 30 %, 10 %, and 10 % respectively  
(b) 60%, 20%, 14%, and 6% respectively  
(c) 40 %, 30%, 20% and 10% respectively  
(d) None of the above
93. Which of the following can be used for controlling Gaseous Pollutant?  
(a) Arrestor (b) Incineration  
(c) Absorption (d) None of above
94. What does the high Biological Oxygen Demand (BOD) indicates?  
(a) High level of Microbial Pollution  
(b) Low level of Microbial Pollution  
(c) Absence of Microbial Pollution  
(d) Water is fully pure
95. What percent of area in the plain should be under forest?  
(a) 21 % (b) 25%  
(c) 17% (d) 33%
96. Biodiversity Hotspot are characterized on the basis of:  
(a) Endemic flowering plants and threat perception  
(b) Endemic flowering plants  
(c) Species of flowering plants  
(d) None of above
97. Upper part of sea/aquatic ecosystem contains  
(a) plankton  
(b) nekton  
(c) plankton and nekton  
(d) benthos.
98. Competition for light, nutrients and space is most severe between  
(a) closely related organism growing in different niches  
(b) closely related organisms growing in the same area/niche  
(c) distantly related organisms growing in the same habitat  
(d) distantly related organisms growing in different niches.
99. Deep black soil is productive due to high proportion of  
(a) sand and zinc  
(b) gravel and calcium  
(c) clay and humus  
(d) silt and earthworm.
100. Pick up the correct food chain  
(a) grass → chamelion → insect → bird  
(b) grass → fox → rabbit → bird  
(c) phytoplankton → zooplankton → fish  
(d) fallen leaves → bacteria → insect larvae.

ANSWER KEY													
1.	(a)	14.	(d)	27.	(c)	40.	(a)	53.	(b)	66.	(d)	79.	(d)
2.	(d)	15.	(b)	28.	(b)	41.	(c)	54.	(d)	67.	(b)	80.	(c)
3.	(c)	16.	(d)	29.	(b)	42.	(d)	55.	(b)	68.	(c)	81.	(a)
4.	(d)	17.	(a)	30.	(c)	43.	(b)	56.	(a)	69.	(a)	82.	(b)
5.	(b)	18.	(c)	31.	(d)	44.	(d)	57.	(b)	70.	(d)	83.	(b)
6.	(b)	19.	(a)	32.	(b)	45.	(d)	58.	(d)	71.	(c)	84.	(d)
7.	(a)	20.	(c)	33.	(c)	46.	(a)	59.	(a)	72.	(c)	85.	(d)
8.	(c)	21.	(b)	34.	(a)	47.	(d)	60.	(c)	73.	(a)	86.	(a)
9.	(b)	22.	(c)	35.	(d)	48.	(c)	61.	(a)	74.	(b)	87.	(a)
10.	(d)	23.	(c)	36.	(a)	49.	(b)	62.	(c)	75.	(d)	88.	(c)
11.	(d)	24.	(c)	37.	(c)	50.	(d)	63.	(d)	76.	(b)	89.	(c)
12.	(a)	25.	(b)	38.	(a)	51.	(c)	64.	(d)	77.	(b)	90.	(a)
13.	(a)	26.	(d)	39.	(b)	52.	(d)	65.	(b)	78.	(a)	91.	(a)

## Hints & Solutions

- (a) Eduard Suess was an Austrian, responsible for hypothesising two major former geographical features, the supercontinent Gondwana and the Tethys Ocean. The term "biosphere" was coined by geologist Eduard Suess in 1875, which he defined as "The place on Earth's surface where life dwells."
- (d) The most abundant greenhouse gases in Earth's atmosphere are:  
Water vapor ( $H_2O$ ), Carbon dioxide ( $CO_2$ ), Methane ( $CH_4$ ), Nitrous oxide ( $N_2O$ ), Ozone ( $O_3$ ) and CFCs.
- (c) Agenda 21 is a non-binding, voluntarily implemented action plan of the United Nations with regard to sustainable development. It is a product of the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in 1992. The "21" in Agenda 21 refers to the 21st Century.
- (d) Environmental degradation means lowering of environmental qualities, adverse changes by human activities and ecological imbalance.
- (b) United States and Canada are the countries which are mostly affected by acid rain because of high number of factories, power plants and large number of automotive plants. Europe, Poland, Germany, Czech Republic, Sweden, Norway and Finland are affected because of British and European factories. In Asia, India and China are mostly affected mainly because of the large number of factories.
- (b) Radioactive contamination or pollution causes severe life-threatening consequences in organisms. Because of the radioactive decay of the contaminants, which emit harmful ionising radiation such as alpha or beta particles, gamma rays or neutrons, genetic mutations occur which are hereditary. Carcinogenic contaminants cause cancer.
- (a) Natural vegetation is the true index of climate because water loving plants are found in moist climate.
- (c) Global warming is the increase in the global temperature. It has put many negative impacts on glaciers causing them to start melting, so, rise of sea level. Unpredictable weather conditions prevailing in some geographical areas are some of the other effects of global warming.



9. (b) Forests are renewable natural resources and enhance the quality of environment by providing the Oxygen needed to sustain life on the earth. Although both assertion and reason are correct statements but reason is not the correct explanation of the assertion.
10. (d) As an ecosystem, wetlands are useful for nutrient recovery and cycling, releasing heavy metals through absorption by plants. They also control floods and maintain floods.
11. (d) The Milankovitch theory is an explanation of long term climate change. The book 'On the Origin of Species' was written by Charles Darwin, published on 24 November 1859.
12. (a) Ecosystem is the dynamic community of living organism with physical environment. Thus, it comprises of both biotic and abiotic components. Solar energy is the ultimate source of energy in it, so is the main driving force. Dynamic energy transfers occur making it an open system. The autotrophs make the ecosystem's biotic components self-sufficient.
13. (a) Plants are called primary producers because plants produce their food themselves through the process of photosynthesis.
14. (d) As we go higher in the trophic levels through the food chain, the loss of energy due to respiration as well as metabolic activities successively increase. So, there occurs the transference of only 10% of the preceding trophic level to the next higher trophic level.
15. (b) Both the assertion and reason are correct statements but the later is not the correct explanation of the former. The basic planning for environment includes 'conservation of organisms and resources' as the most valuable component. Development can be complementary to conservation, only when it is sustainable.
16. (d) The ever-increasing human population creates a loss of natural habitat of organisms and have other impacts such as various kinds of pollution. Thus, the ecosystem gets imbalanced in many ecological terms.
17. (a) Both the statements are true and R is the correct explanation of A.
18. (c) The relative loss of energy increases in successive trophic levels. Primary consumers use 10% of the energy stored in plants. Secondary and tertiary consumers transfer 20% of the energy from their own bodies so they are more efficient. In going from lower to higher trophic levels energy transfers are insufficient so making the food chains limited to only 4-5 trophic levels. Higher trophic levels are less discrete due to their less specialised food habits.
19. (a) Both A and R are correct and R is the correct explanation of A. Organic farming depends on on-farm resources, using alternative sources like usage of no chemical pesticides and fertilizers, on-farm practices which do not depend on fossil fuels consumption.
20. (c) The National Biodiversity Authority (NBA) an autonomous body was established in 2003 to implement India's Biological Diversity Act (2002).
21. (b) Bandipur National Park, a tiger reserve is located in the south Indian state of Karnataka. Manas National Park or Manas Wildlife Sanctuary is a National Park, UNESCO Natural World Heritage site, a Project Tiger Reserve, an Elephant Reserve and a Biosphere Reserve in Assam. The Sundarban National Park is a National Park, Tiger Reserve, and a Biosphere Reserve in India. It is a part of the Sundarbans on the Ganges Delta of India and Bangladesh. Bhitarkanika National Park is a national park located in the Kendrapara District Odisha, which is not specifically for Tiger reserve.
22. (c) Wetlands cover around 3% of the total land area of India. Gujarat occupies around 3 million hectares of wetlands out of India's total 10 million hectares of wetland area. India has total 27,403 wetlands, of which 23,444 are inland wetlands and 3,959 are coastal wetlands but the coastal wetlands occupy an estimated 6,750 sq km, which is more than the inland wetlands.
23. (c) Global Warming, fragmentation of habitat and invasion of alien species can be threats to the biodiversity of a geographical area.
24. (c) There is an increase in biodiversity from the poles to the tropics. Thus localities at lower latitudes have more species than localities at higher latitudes.

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25. (b) The ICUN Red list of threatened species or the Red Data Book is the state document established for documenting rare and endangered species of animals, plants and fungi existing within the territory of the state or country.
26. (d) Biological diversity helps in the formation and maintenance of soil structure and the retention of moisture and nutrient levels. Trees on the other hand, lower the water table and remove deposited salt from the upper soil horizons.
27. (c) The Gir Forest National Park and Wildlife Sanctuary is a forest and wildlife sanctuary in Gujarat. It is the sole home of the Asiatic Lions (*Panthera leopersica*). Sundarbans National Park in West Bengal is the home of Bengal tigers. Betla National Park is located in the Chota Nagpur Plateau of the Latehar district of Jharkhand. Kaziranga National Park is located in Golaghat and Nagaon districts of Assam, a World Heritage Site, the park hosts two-thirds of the world's Great One-horned Rhinoceroses.
28. (b) Nilgiri biosphere site was set up in 1986. Nanda Devi biosphere site was set up in 1988. Sundarban biosphere site was set up in 1989. Kanchanjunga biosphere site was set up in 2000.
29. (b) A biodiversity hotspot is a biogeographic region with a significant reservoir of biodiversity that is under threat from humans. Around the world, as many as 25 areas qualify to be the hotspots. Out of which India has 2 hotspots: Eastern Himalayas and Western Ghats.
30. (c) Dihang-Dibang or Dehang-Debang is a biosphere reserve constituted under the Man & Biosphere Programme. It is in the Arunachal Pradesh. Manas National Park is in Assam. Nokrek National Park is located in West Garo Hills district of Meghalaya. Simlipal National Park is an elephant reserve situated in the Mayurbhanj district in Odisha.
31. (d) The correct descending order of mangrove cover in the states are West Bengal, Gujarat, Andhra Pradesh, Orissa.
32. (b) The concept of biodiversity was propounded by E.O. Wilson. The concept of wildlife was propounded by W. Hornaday. The concept of Ecosystem propounded by G. Tansley. The concept of Ecology was propounded by E. Haeckel.
33. (c) Dachigam National Park is located 22 kilometers from Srinagar, Jammu and Kashmir. It covers an area of 141 square kilometres. Loktak Lake, the largest freshwater lake in India, also called the only Floating lake in the world due to the floating phumdis (heterogeneous mass of vegetation, soil, and organic matters at various stages of decomposition) on it, is located near Moirang in Manipur.
34. (a) Namdapha National Park is the largest protected area in the Eastern Himalaya biodiversity hotspot and is located in Arunachal Pradesh. Periyar National Park and Wildlife Sanctuary is a protected area in the districts of Idukki and Pathanamthitta in Kerala. Bandipur National Park, established in 1974 as a tiger reserve under Project Tiger, is a national park located in the south Indian state of Karnataka. The Keibul Lamjao National Park is a national park in the Bishnupur district of Manipur.
35. (d) Bees, bats and birds are the biotic pollinating agents. Wind is also an agent of pollination but is an abiotic agent.
36. (a) The Millennium Ecosystem Assessment (MA) report 2005 defines Ecosystem services as benefits people obtain from ecosystems and distinguishes four categories of ecosystem services: 1. Supporting services, 2. Provisioning services, 3. Regulating services, 4. Cultural services.
37. (c) Keystone species are not necessarily small sized though they put great effect on the environment. They play very critical role in maintaining the structure of an ecological community by affecting many other organisms. An ecosystem may experience a dramatic shift if a keystone species is removed, even though that species may be small part of the ecosystem by measures of biomass or productivity.
38. (a) Mangrove- plants have higher concentration of salts and minerals (solutes, such as proline and sorbitol) in the cells making their osmotic potential higher than the surrounding water in which they grow. This is a type of adaptation that allows water uptake by the plants in spite of growing in salty waters. Some mangroves also pump out excess salt by specialised roots.

39. (b) The term 'ammensalism' generally refers to the complete or partial inhibition or death of one organism by another through production of some chemicals (allochemicals) as a result of metabolic pathways. In it, none of the organisms gets any benefit. It is more common in microbial world.
  40. (a) Both A and R are true and R is correct explanation of A. The weedicides and herbicides are metabolic inhibitors, inhibiting the metabolic pathways as well as photosynthesis. Some weedicides also cause phloem cells' proliferation so as to block the transport of plants' food materials.
  41. (c) A new online Atlas of freshwater biodiversity has been launched on 29 January, 2014. It will present spatial information and species distribution patterns. The Atlas is an output of BioFresh – an EU-funded project in which the IUCN Global Species Programme is a key partner. It is working to better understand, manage and protect our freshwaters, for generations to come.
  42. (d) The prestigious Gold Standard Foundation (GSF) certification has been awarded to the Delhi Metro Rail Corporation (DMRC), for efficient usage of energy, on 2 February, 2014. DMRC has become the first ever Railway system in the world with GSF certification standard. In 2008, DMRC had also become the first Railway project in the world to be registered by the UN under the Clean Development Mechanism (CDM).
  43. (b) IUCN, the world's oldest and largest global environmental organization, is celebrating its completion of 50 years. It was founded in 1948. It lists out all types of organisms vulnerable to any kind of loss, in its Red data book.
  44. (d) The earthquake felt in Java, Indonesia, had been measured to be 6.1 on Richter's scale. It is prone to such tremors due to its location in Pacific Ring of fire. One of the incidents occurred in here in 2004 when a monster temblor off Aceh shores triggered a tsunami that killed 230,000 people in a dozen countries.
  45. (d) Almost all of the mercury in the Arctic atmosphere is transported there in gaseous form from sources in areas farther south, from sources such as wildfires, coal burning and gold mining. Scientists have long known that mercury in the air near ground level undergoes complex chemical reactions that deposit the element on the surface.
- Once the mercury is completely removed from the air, these reactions stop. However, this newly discovered mixing ice forces down additional mercury to restart and sustains the reactions.
46. (a) The researchers isolated metabolic genes from multiple species of bacteria and pieced them together in *Escherichia coli* (*E.coli*) to create artificial biochemical pathways that convert free fatty acids to hydrocarbons. One such pathway, named CEDDEC, contained metabolic genes from the bioluminescent bacterium *Photorhabdus luminescens* and the cyanobacterium *Nostoc punctiforme*. When grown in broth containing various combinations of fatty acids, or when modified to express additional genes, the engineered *E. coli* produced molecules that are structurally and chemically identical to 10 retail diesel fuel hydrocarbons commonly used in temperate climates.
  47. (d) The schedule is meant to reduce the growth of the US government's liabilities under the 1982 Nuclear Waste Policy Act, under which it was to begin taking spent reactor fuel from power companies in 1998. About 68,000 tonnes of used reactor fuel remains at 72 different power plant sites across the country, with the Department of Energy (DoE) reimbursing power companies the cost. The current production rate of spent fuel is 2,000 tonnes a year. The two interim facilities will accept used reactor fuel at a rate faster than this in order to reduce gradually the inventory at power companies.
  48. (c) It is believed that other sea creatures such as turtles, sharks and whales may also use Earth's magnetic field to roam the oceans. The 17-year-old Machli is the longest living wild tigress in the world, besides being the most photographed big cat. The tigress was identified as T-16. Machli had survived in the dense forest by hunting her own prey despite her advanced age.
  49. (b) The Researchers found a small correlation between cosmic rays and global temperatures occurring every 22 years; however, the changing cosmic ray rate lagged behind the change in temperatures by between one and two years, suggesting that the cause might not be down to cosmic rays and cloud formation but might be due to the direct effects of the sun. By comparing the small oscillations in the cosmic ray rate, which were taken from data from two neutron monitors, and

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- temperature with the overall trends in both since 1955, the research team found that less than 14 per cent of the global warming seen during this period could be attributable to solar activity.
50. (d) Other reasons for the decline in the number of these birds are changes in cropping pattern due to various reasons including implementation of irrigation schemes; increased pesticide usage and livestock-grazing; high levels of disturbance; and developmental activities like mining and hydel projects. This also includes collision of the birds with vehicles, wind turbines and power lines
  51. (c) The IUCN also provides the information that is related to species-based conservation actions. It also helps in identifying globally important sites for conservation including important plant areas, important bird areas, key biodiversity areas and alliance for zero extinction sites. It helps in influencing the decisions of conservation at multiple scales that include environmental impact assessments to international multilateral environments agreements. It indicates the current status of species and revealing trends in their extinction risk over time, to track progress towards biodiversity targets.
  52. (d) For conservation of endangered species Wildlife Crime Control Bureau has been established for control of illegal trade in wildlife, including endangered species of birds and their parts and products. Research and monitoring activities on birds are promoted by the Government through reputed research organizations. Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are some of the research organizations undertaking research on conservation of birds. The Indian government has banned the veterinary use of diclofenac drug that has caused rapid decline in vulture population across the Indian Subcontinent. Conservation Breeding Programmes to conserve these vulture species have been initiated at Pinjore (Haryana), Buxa (West Bengal) and Rani, Guwahati (Assam) by the Bombay Natural History Society.
  53. (b) GSF standard certification is a globally accepted certification standard for carbon mitigation projects. The Delhi Metro Rail Corporation (DMRC) registered for the certification standard for its energy efficiency measures undertaken in 51 stations in Phase II of the DMRC Project. The energy efficiency measures were primarily undertaken in the heating, venting and air conditioning (HVAC) systems, lighting system and other energy efficient measures of station buildings; the measures adopted in the HVAC system resulted in reduction in electrical energy consumption.
  54. (b) The veterinary drug Diclofenac that is used in vetting the cattle has been identified as a reason that is causing the sharp deep in the number of vultures. Use of this drug has been banned in India. Diclofenac is toxic for any and all vultures that feed on the carcass of recently treated cattle. Saving Asia's Vultures from Extinction (SAVE) in its study says that the version for human use is being illegally given to the cattle. A programme named SAVE in its plan will release up to 25 birds into the 30000 kilometer square safe zone. The captive-bred birds will be released into the wild by 2016 under the project.
  55. (b) Tree foundation, an NGO engaged in conservation of the sea turtle, found more than 100 dead Olive Ridley turtles in the shores of Nagapattinam. The Olive Ridley turtles are rusty coloured carapace and have slightly smaller head and shell than the Kemp turtles. These Olive Ridley turtles generally occur through the Antilles, around the north coast of South America, in West Africa, the Indian Ocean, Australia and Southeast Asia. As per the reports the populations of Olive Riddles have declined in Pakistan, Myanmar, Malaysia and Thailand, and possibly on the east coast of India, south of Orissa and in the Andaman and Nicobar islands.
  56. (a) Chilika is the only site to be selected from Asia by the UNWTO and was included in a list of eight such sites. The Destination Flyways initiative of UNWTO aims at promotion of sustainable tourism. The lagoon was named so for its sustainable and resilient destination for migratory birds. The status will help Chilika Development Authority (CDA) to develop strategies for protection of migratory birds through creation of innovative tourism and livelihood products. Chilika Lake is the largest

- brackish water lake in Asia with estuarine character that sprawls along the east coast. It is the largest wintering ground for migratory waterfowl found anywhere in the Indian sub-continent. It is one of the hotspot of biodiversity in the country, and some rare, vulnerable and endangered species listed in the IUCN Red List of threatened Animals inhabit the lagoon for at least part of their life cycle.
57. (b) First Climate Change theatre was opened at Pushpa Gujral Science City in Kapurthala, Punjab on 16 January 2014. The theatre will educate people on climate change. This is the second theatre in the world to be opened after Canada. The theatre is 18 metre in diameter and it is set up in a dome-shaped building with a seating capacity of 125 persons. The 25-minute film shows what worst can happen if humans do not take action on current or impending problems which could threaten civilization. The film starts by giving a glimpse of future - floods, droughts, earthquakes and other natural disasters.
  58. (d) The estimation of retreat of Gangotri glacier has been measured using rapid static and kinematic GPS survey. The Gangotri is one of the largest Himalayan glaciers in Uttarkashi district, Uttarakhand. The glaciers originate at about 7100 meter above the sea level and are 30.2 km long and width that varies between 0.5 and 2.5 km. The River Bhagirathi, one of the main tributaries of the Ganga, originates from Gangotri glacier.
  59. (a) The aim of the Taishan research base station is to provide a base for research on bio-ecology and remote satellite sensing. The camp will be used from December to March every year and is located near the United States' McMurdo Station, Italy's Zucchelli Station and a recently built South Korean station. Base Stations of India at Antarctica are Dakshin Gangotri, Maitri, and Bharathi.
  60. (c) Along with the first 3 species *Mystus menoni* species of Catfish were discovered from the Manimala river. Catfish are freshwater, bottom-dwelling fish. Unlike other fish, they have no scales and are smooth-skinned. They are known for growing whiskers, called "barbels," at some point during their lifespan. Catfish use their barbels as feelers as they swim along the bottom of the various bodies of water in which they live. There are 2,900 species of catfish worldwide. They range in size from 1.5 to 2 in chest to more than 8 feet in length.
  61. (a) The ministry declared 313 sq km around the Marine National Park in Gulf of Kutch, Gujarat as an eco-sensitive zone through a notification. Of this, 208 sq km is land while the remaining is on the seaside. Land use for recreational, commercial or industrial development will not be permitted in the area except for residential purpose. Mining, including fresh water mining, and release of polluted water and waste will also be prohibited. The ministry even disallowed fishing by trawlers. The government will prepare a zonal ecology conservation master plan. The plan will restore denuded areas as well as existing water bodies. The plan should also have provision for management of catchment areas, watershed management, groundwater and soil conservation.
  62. (c) Magellanic penguins are medium-sized penguins standing about 15 inches tall and weighing about 10 pounds. Males of the species sound like braying donkeys when they vocalize. Among 17 species of penguins, 10 including Magellanic penguins are found in the region, where there is no snow, it is relatively dry and temperatures can be temperate. To protect the chicks, parents are too big to sit over and those are still too young to have grown waterproof feathers. Downy penguin chicks exposed to drenching rain can struggle and die in absence of the attention of their concerned parents. During extreme heat chicks without waterproofing can't take a dip in cooling waters as adults.
  64. (d) Dung beetles and disease carrying flies both compete for the same food, that is cattle droppings. Since both of these organisms belong to different species, this competition is called interspecific competition.
  65. (b) In environmental law, the polluter pays principle is enacted to make the party responsible for producing pollution, to be held responsible for paying the damage done to the natural environment.
  66. (d) The flea beetles have proved to be an effective means of controlling leafy spurge. The flea beetles typically take 3-5 years to establish and impact leafy spurge infestations.



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67. (b) Scientists have recognized that nutrient enrichment was a threat to the bay. In 1987 formal goals were established to reduce nitrogen and phosphorous inputs to the bay from both point and non point sources.
68. (c) In parasitic food chains, the pyramid of number is always inverted as a single plant may support many herbivores and birds and each one of these in turn, may provide nutrition to several hyperparasites.
71. (c) In hydrothermal vent communities, we should not expect to find chlorophyll as photosynthesis cannot take place due to absence of light.
74. (b) Cogeneration or combined heat and power (CHP) is the use of a heat engine or power station to simultaneously generate electricity and useful heat.
75. (d) In addition to increasing corn yields and cutting nitrogen expense, keeping soyabeans in the rotation lowers next years corn rootworm management costs.
76. (b) The concept of biodiversity hotspot was given by Norman Myers. In 1988 he first identified 10 tropical forest "hotspots" characterised by both exceptional level of plant endemism and by serious levels of habitat loss. Later on, Conservation International (CI) adopted Myers' hotspots. They gave a broad definition criteria of the Biodiversity hotspot.
77. (b) The concern about human-to-human transmission of bird flu virus H5N1 is closely monitored by government agencies in order to determine whether human-to-human transmission is occurring.  
The CDC (Centre for Disease Control) and WHO recommend the prescription antiviral drug Tamiflu (oseltamivir) for treating and preventing human infections with the bird flue virus.
78. (a) Microclimate is defined as the climate of a very small or restricted area, especially when this differs from the climate of the surrounding area. Here, while the climate of the surrounding area is very hot the place at the edge of the stream, under the tree, on a rock will have a cooler microclimate.
79. (d) Materials from land's surface can travel through the soil ultimately reaching the groundwater. For example pesticide and fertilizers can enter into the ground water supplies. Untreated waste from septic tanks and toxic chemicals from underground storage tanks and leaky landfills can also contaminate groundwater.
81. (a) Recycling is the best way to get rid of non-biodegradable waste. Burying will not have any effect on the non-biodegradable wastes. Burning causes pollution.
82. (b) Ozone present in the stratosphere, acts as a protection from U.V. light. Without this protective shield, all life would be more susceptible to cancer, impaired immunity and other health issues. Whereas the ozone present in the troposphere, which is close to earth surface, can damage our lungs. Hence it is not good for breathing.
83. (b) In an pollution free stratosphere, the production and destruction of ozone are in balance and hence the concentration of  $O_3$  remains constant with time. When CFC's are released into the lower troposphere, they diffuse up into the stratosphere since their lifetime is 50-100 years when CFCs reach the middle stratosphere, UV radiation liberates the chlorine atom.  
$$CFC + UV \rightarrow Cl$$
  
Cl is then able to destroy as man as 100,000  $O_3$  molecules.
84. (d) It has been proved that CFCs are a major cause of depletion of the earth's stratospheric ozone layer and contribute to the green house effect. Large quantities of CFCs are used as refrigerants in a number of refrigerating and air conditioning systems. Though the refrigerant moves in a closed cycle, there are lots of leakages that escape to the atmosphere and cause destruction of the ozone layer. CFCs have exceptionally long atmospheric life, which can extend upto 100 years.
86. (a) IPCC is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential

- environmental and socio-economic impacts.
87. (a) Ecotone is a place where two different eco systems meet each other. Mangrove and terrestrial eco system is an example of Ecotone. This area is very rich in species. The ecotone has species of both ecosystems as well as some species which are characteristic and restricted to the ecotone.
  88. (c) Estuary is a place where the fresh water of river or stream meets with ocean water. This place provides the conducive conditions for development of different species.
  89. (c) Biosphere is a combination of lithosphere, hydrosphere and atmosphere. Biosphere is not found everywhere, some areas do not support the conditions required for Biosphere. Hence Organisms are not uniformly distributed throughout the world.
  90. (a) Carbon credit shows that a country or any entity emits the carbon below the limit prescribed by the government, hence the country or entity can sell it in exchange where carbon credits are traded.
  91. (a) Coral Bleaching is being caused by the climate change. Increase in surface temperature of ocean due to climate change is increasing the decline of zooxanthellae. Zooxanthellae is responsible for the process of photosynthesis.
  92. (b)  $\text{CO}_2$  is the largest contributor towards global warming, followed by methane, CFCs and  $\text{N}_2\text{O}$ .
  93. (c) Absorption technique is used for controlling Gaseous pollutant. These pollutants are brought into contact with a liquid such as water. The liquid absorbs the gas.
  94. (a) Oxygen is required for decomposition of microorganism under the water. Increase in waste and pollution enhances the decomposition activities and thereby reduces the availability of oxygen for other organic activities under the water body. Hence a higher demand of oxygen (BOD) indicates higher level of microbial pollution.
  95. (d) National Forest Policy has recommended that in order to maintain the ecological balance there should be 33 % area under the forest in plain areas. However, the present forest cover in India is around 21-22 %.
  96. (a) Biodiversity hotspots are areas rich in plant species and these species are endemic to this area. Endemism implies the presence of species in particular area only.
  97. (a) Planktons are passively floating in upper water, nektons are actively swimming while benthos lead sedentary life upon the sea bottom. Planktons are producers and are present in large number.
  98. (b) Competition is rivalry for obtaining the same resource. Competition of light, nutrients and space is most severe between closely related organisms growing in the same area/niche, due to overproduction of population in the same area/niche.
  99. (c) Deep black soil is productive due to high proportion of clay and humus. The organic matter present in the soil is contributed by the death and decay of living organisms. These are the richest in nutrients and therefore these soils are the most fertile.
  100. (c) The process of transfer of energy from producers through a series of organisms, i.e., from primary consumers to secondary consumers and from secondary consumers to tertiary consumers by process of eating and being eaten is known as a food chain. The correct food chain is phytoplankton  $\rightarrow$  zooplankton  $\rightarrow$  fish.